WHAT IS CLAIMED IS:

1. A bulkhead assembly for use with an inflatable modular structure, the inflatable modular structure having at least two longerons, an inflatable bladder having an opening on opposing ends, and a flexible restraint layer having an opening on opposing ends and a plurality of attachment loops on each end, the bulkhead assembly comprising:

a plate having an inner surface;

a plurality of longitudinal restraint fittings;

a first bladder flange;

a second bladder flange;

a plurality of flange seals;

at least two longeron sleeves;

each longeron sleeve being fixedly secured to the inner surface of the plate and adapted to securedly receive a longeron;

the first and second bladder flanges being adapted to securedly receive one of the opposing ends of the inflatable bladder therebetween;

the second bladder flange being secured to the inner surface of the plate with the

plurality of flange seals secured between the plate and second bladder flange; and

the plurality of longitudinal restraint fittings being secured to the plate and each of the longitudinal restraint fittings adapted to receive an attachment loop from one of the opposing ends of the flexible restraint layer such that the restraint layer substantially encompasses the inflatable bladder.

2. The bulkhead assembly of claim 1 wherein each longitudinal restraint fitting is substantially "U" shaped defining opposing posts and each longitudinal restraint fitting further comprises a roller being secured between the opposing posts and adapted to receive an attachment loop around the roller.

3. The bulkhead assembly of claim 1 wherein the plate has an access opening.

4. The bulkhead assembly of claim 1 wherein the plate further comprises an outer surface, the outer surface being adapted to receive an airlock assembly.

5. The bulkhead assembly of claim 1 wherein the plate further comprises an outer surface, the outer surface being adapted to receive a distal end assembly.

6. The bulkhead assembly of claim 1 wherein the plate further comprises an outer surface, said outer surface and inner surface having a plurality of bulkhead load pads.

7. The bulkhead assembly of claim 1 wherein the longitudinal restraint fittings are adjacent to the second bladder flange.

8. A bulkhead assembly for use with an inflatable modular structure, the inflatable modular structure having at least two longerons, an inflatable bladder having an opening on opposing ends, and a flexible restraint layer having an opening on opposing ends and a plurality of attachment loops on each end, the bulkhead assembly comprising:

a plate;

means for securing the longerons to the plate;

means for securing one of the opposing ends of the inflatable bladder to the plate; and

means for securing the attachment loops on one of the opposing ends of the flexible restraint layer to the plate.

9. A method for attaching a bulkhead assembly to an inflatable modular structure, the inflatable modular structure having at least two longerons, an inflatable bladder having an opening on opposing ends, and a flexible restraint layer having an opening on opposing ends and a plurality of attachment loops on each end, the method of attaching the bulkhead assembly comprising the steps of:

securing the longerons to the bulkhead assembly;

securing one opposing end of the inflatable bladder to the bulkhead assembly; and

securing the attachment loops on one of the opposing ends of the flexible restraint layer to the bulkhead assembly.

10. The method for attaching a bulkhead assembly to an inflatable modular structure in claim 9 using the bulkhead assembly of claim 3.

11. A method for attaching a bulkhead assembly to an inflatable modular structure, the inflatable modular structure having at least two longerons, an

inflatable bladder having an opening on opposing ends, and a flexible restraint layer having an opening on opposing ends and a plurality of attachment loops on each end, the method of attaching the bulkhead assembly comprising the steps of:

securing the longerons to the bulkhead assembly of claim 1;

securing one opposing end of the inflatable bladder to the bulkhead assembly of claim 1; and

securing the attachment loops to the bulkhead assembly of claim 1.

12. A method for attaching a bulkhead assembly to an inflatable modular structure, the inflatable modular structure having at least two longerons, an inflatable bladder having an opening on opposing ends, and a flexible restraint layer having an opening on opposing ends and a plurality of attachment loops on each end, the method of attaching the bulkhead assembly comprising the steps of:

securing the longerons to the bulkhead assembly of claim 8;

securing one opposing end of the inflatable bladder to the bulkhead assembly of claim 8; and

securing the attachment loops to the bulkhead assembly of claim 8.

13. A method for attaching a bulkhead assembly to opposing ends of an inflatable modular structure, the inflatable modular structure having a truss comprised of at least two longerons and each longeron having a fore and an aft end, an inflatable bladder having a first and second opening on opposing ends, and a flexible restraint layer having a first and second opening on opposing ends and a plurality of attachment loops on each end, the method of attaching the bulkhead assemblies comprising the steps of:

securing the fore ends of the longerons to a first bulkhead assembly as in claim 1;

securing the aft ends of the longerons to a second bulkhead assembly as in claim 3;

securing the first opposing end of the inflatable bladder to a first bulkhead assembly as in claim 1;

securing the second opposing end of the inflatable bladder to a second bulkhead assembly as in claim 3;

securing the attachment loops on the first opposing end of the restraint layer to a first bulkhead as in claim 1; and

securing the attachment loops on the second opposing end of the restraint layer to a second bulkhead as in claim 3 such that the restraint layer substantially encompasses the inflatable bladder.

14. A method for attaching a bulkhead assembly to opposing ends of an inflatable modular structure, the inflatable modular structure having a truss comprised of at least two longerons and each longeron having a fore and an aft end, an inflatable bladder having a first and second opening on opposing ends, and a flexible restraint layer having a first and second opening on opposing ends and a plurality of attachment loops on each end, the method of attaching the bulkhead assemblies comprising the steps of:

securing the fore ends of the longerons to a first bulkhead assembly as in claim 8;

securing the aft ends of the longerons to a second bulkhead assembly as in claim 8;

securing the first opposing end of the inflatable bladder to a first bulkhead assembly as in claim 8;

securing the second opposing end of the inflatable bladder to a second bulkhead assembly as in claim 8;

securing the attachment loops on the first opposing end of the restraint layer to a first bulkhead as in claim 8; and

securing the attachment loops on the second opposing end of the restraint layer to a second bulkhead as in claim 8.

15. An inflatable modular structure utilizing two bulkhead assemblies, the inflatable modular structure having at least two longerons each having fore and aft ends, an inflatable bladder having an opening on opposing ends, and a flexible restraint layer having an opening on opposing ends and a plurality of attachment loops on each end, the inflatable modular structure utilizing two bulkhead assemblies comprising:

a first and second bulkhead assembly as in claim 3;

the fore ends of the plurality of longerons securedly attached to a plurality of longeron sleeves on the first bulkhead assembly;

the aft ends of the plurality of longerons securedly attached to a plurality of longeron sleeves on the second bulkhead assembly;

one end of the inflatable bladder being attached to the first bulkhead assembly;

the opposing end of the inflatable bladder being attached to the second bulkhead assembly;

one end of the restraint layer being attached to the first bulkhead assembly;

the opposing end of the restraint layer being attached to the second bulkhead assembly.

16. An inflatable modular structure utilizing two bulkhead assemblies, the inflatable modular structure having at least two longerons each having fore and aft ends, an inflatable bladder having an

opening on opposing ends, and a flexible restraint layer having an opening on opposing ends and a plurality of attachment loops on each end, the inflatable modular structure utilizing two bulkhead assemblies comprising:

a first and second bulkhead assembly as in claim 8;

the fore ends of the plurality of longerons securedly attached to a plurality of longeron sleeves on the first bulkhead assembly;

the aft ends of the plurality of longerons securedly attached to a plurality of longeron sleeves on the second bulkhead assembly;

one end of the inflatable bladder being attached to the first bulkhead assembly;

the opposing end of the inflatable bladder being attached to the second bulkhead assembly;

one end of the restraint layer being attached to the first bulkhead assembly;

the opposing end of the restraint layer being attached to the second bulkhead assembly.

17. An inflatable modular structure utilizing two bulkhead assemblies, the inflatable modular structure having at least two longerons each having fore and aft ends, an inflatable bladder having an opening on opposing ends, and a flexible restraint layer having an opening on opposing ends and a plurality of attachment loops on each end, the inflatable modular structure utilizing two bulkhead assemblies comprising:

a first bulkhead assembly as in claim 3;

a second bulkhead assembly as in claim 6 and further comprising an access opening;

means for securing the fore ends of the plurality of longerons to the first bulkhead assembly;

means for securing the aft ends of the plurality of longerons to the second bulkhead assembly;

means for securing one end of the inflatable bladder to the first bulkhead assembly;

means for securing the opposing end of the inflatable bladder to the second bulkhead assembly;

means for securing one end of the restraint layer to the first bulkhead assembly;

means for securing the opposing end of the restraint layer to the second bulkhead assembly such that the flexible restraint layer substantially encompasses the inflatable bladder.

18. An inflatable modular structure utilizing two bulkhead assemblies, the inflatable modular structure having at least two longerons each having fore and aft ends, an inflatable bladder having an opening on opposing ends, and a flexible restraint layer having an opening on opposing ends and a plurality of attachment loops on each end, the inflatable modular structure utilizing two bulkhead assemblies comprising:

a first and second bulkhead assembly each as in claim 8;

means for securing the fore ends of the plurality of longerons to the first bulkhead assembly;

means for securing the aft ends of the plurality of longerons to the second bulkhead assembly;

means for securing one end of the inflatable bladder to the first bulkhead assembly;

means for securing the opposing end of the inflatable bladder to the second bulkhead assembly;

means for securing one end of the restraint layer to the first bulkhead assembly;

means for securing the opposing end of the restraint layer to the second bulkhead assembly such that the restraint layer substantially encompasses the inflatable bladder.